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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,277

08/22/2006

Kenji Hasegawa

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EXAMINER

NGUYEN, COLETTE B

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

08/03/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,277	Applicant(s) HASEGAWA ET AL.	
	Examiner COLETTE NGUYEN	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7, 11-14 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-7, 11-14 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the application

Remarks filed 06/01/10

Claim 2-9, 11-17 are as file on 10/19/09

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. **Claim 2-7, 11-14 and 17** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Prased et al (US2003/0138679).
2. **Regarding claim 2.** Prased (679) discloses a fuel tank that is detachable, i.e. can be removable from the system of the fuel cell with self-sealing inlet/outlet connector (**connector 114**) which allows to control fuel to flow thru a flow path only when it mates (join) with a corresponding host device **connector 116**. The tank has a fuel injecting portion (Fig 4, spring 120 and pusher 122), a flow path (108) with shut off valve (126). As for configuration and shape, depend on the host device, the fuel tank can be vary. It would have been obvious for one of ordinary skill in the art at the time of the invention to modify the teachings of Prased and adapt it to the host device and replace the connectors of Prased with other equivalent devices with the same concepts, i.e. a removable fuel tank with interlocking devices when it is installed and removed from the fuel cell. . (fig 1-5 and para 0024, 0035).

Art Unit: 1793

3. Regarding claims 3, 4, 5, 12 and 13. Prased discloses the control sequences of the connectors 114, 116 and of shut-off valve 126 using back pressure of the reaction chamber 104 and the porous structure 128, which are the equivalent of the claimed valve opening and closing members. (para 32, 35). Prased does not teach the use of a handle; however he discloses in para 0028, suitable locking devices, latches provided to hold the fuel tank in place, and how the system is connected together so fuel can be controlled to prevent leakage when the tank is removed or engaged.

4. Regarding claim 6. Prased teaches a housing 112, the equivalent of the claimed casing 110 and a mechanical keying apparatus such as a rail and slot arrangements . He does not teach a shutter configured in an opening portion. However, it would have been obvious for one of ordinary skill in the art at the time of the invention to provide a shutter as a positive guide for alignment and indication of positive engagement and connection which is the same concept of a mechanical keying apparatus that Prased teaches.

5. Regarding claim 7. Prased discloses the fuel tank according to claim 2 wherein connectors 114 and 116 (equivalent to the claimed fuel valves) once mated or coupled will allow fuel to flow thru. As the claim is an apparatus, the limitation of the structure is patentable subject and not how it is operating.

6. Regarding claim 11. Prased (679) discloses a fuel cell system wherein the fuel tank can be detachable, i.e. or removable from the system of the fuel cell with self-sealing inlet/outlet connector (connectors 114 and 116) which allow to control fuel to flow thru a flow path (fig 4,7,8 and para 24,35). The tank has a fuel injecting portion (Fig

Art Unit: 1793

4, spring 120 and pusher 122), a flow path (108) with shut off valve (126). As for configuration and shape, depend on the host device, the fuel tank can be vary. It would have been obvious for one of ordinary skill in the art at the time of the invention to modify the teachings of Prased and adapt it to the host device. (fig 1-5 and para 19-35) and replace the connectors of Prased with other equivalent devices with the same concepts, i.e. a removable fuel tank with interlocking devices when it is installed and removed from the fuel cell. . (fig 1-5 and para 0024, 0035).

7. Regarding claim 14. Prased discloses locking devices such as latches in para 0028.

8. Regarding claim 17. Prased discloses the connectors 114 and 116 which are opened with the connection of the fuel tank to the fuel cell and the connectors are closed when the fuel tank disengaged.(para 24 and fig 7 and 8)

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. **Claims 8 and 15** are rejected under 35 U.S.C. 103(a) as unpatentable over Prased (US2003/0138679) in view of Yonetsu et al (US2003/0082421) Prased teaches a fuel tank according to claim 2 and a fuel system according to claim 11. He does not teach that a portion of the tank is made of a material which is deformable in accordance with a reduction of the contents. Yonetsu (421) teaches a fuel cell with a pressure adjusting mechanism which maintains constant the pressure wherein the tank is housed

Art Unit: 1793

in a bellows-shaped storage portion and an air pressure balancing portion (element 9 and pressure release valve 15) (para , 0058, 0063). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the bellow shaped fuel tank (deformable material) of Yonetsu with the teaching of Prased of interlocking with a detachable fuel tank so the pressure can be maintain and a good seal can be achieved.

10. **Claims 9 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Prased as applied to claim 2 and 11 above, in view of Kazunori et al (JP2004-192171). Prased discloses a fuel tank used in a fuel cell wherein shut off valves are used to control the flow of fuel automatically. He does not specify electromagnetic valves. Kazunori (171) specify the use of electromagnetic valves as shut-off valves to control the fuel from the fuel cartridge in a fuel cell.(para 18, fuel valves24). It would have been obvious for one of ordinary skill in the art at the time of the invention to use the electromagnetic valves of Kazunori with the teaching of Prased of the fuel tank so the control can be automatic.

Response to Arguments

11. Applicant's arguments filed 06/01/10 have been fully considered but they are not persuasive. Claims 2 and 11 pertain to a fuel cell and fuel cell system comprising:

- a detachable fuel tank (101)
- a fuel injecting portion (130)
- a flow path opening and closing member constituted a fuel valve (131) and a closing valve (139) provided in a flow path.

Art Unit: 1793

Prased (679) disclosed:

- a fuel tank that is detachable (fuel cartridge 100) with
- fuel injecting portion (spring 120 and pusher 122 that together form an internal pump that applied pressure to the fuel containing substance within a storage area 124)
- -a flow path opening and closing member constituted connector 114 which is the same as item 131 of the applicant and shut-off valve 126 is the same as item 139 of the applicant. As described in the applicant's specification on page 5 line 15, the opening and closing member of the applicant is the connector 114 which acts as a cap to prevent the release of fuel unless it mates with the corresponding connector 116. Shut-off valve 126 is the back-up safety device same as closing valve 139. Both Prased's items 114 and 126 are on the flow path of the fuel supply and constitute as flow path opening and closing member. The argument is not persuasive.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 1793

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLETTE NGUYEN whose telephone number is (571)270-5831. The examiner can normally be reached on Monday-Thursday, 10:00-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on (571)-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 10/590,277

Page 8

Art Unit: 1793

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/COLETTE NGUYEN/
Examiner, Art Unit 1793

August 1, 2010

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793